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## SECTION C

### LAB # 3

## AN OVERVIEW OF NETWORKING AND TOPOLOGIES

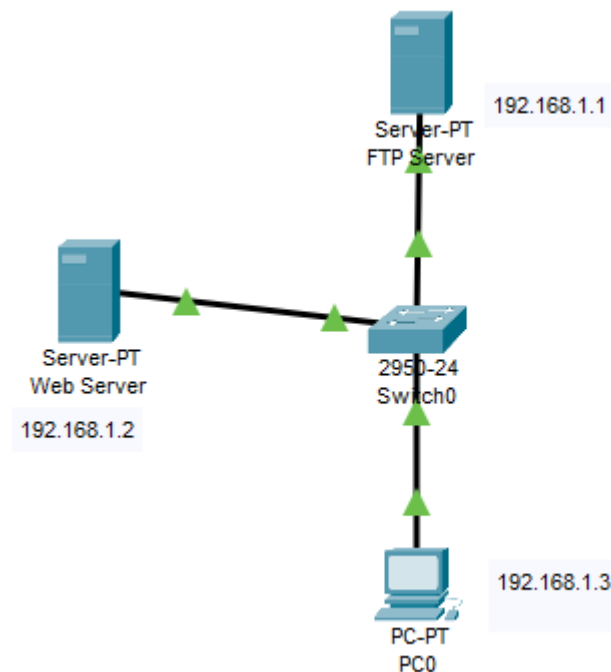
### OBJECTIVE:

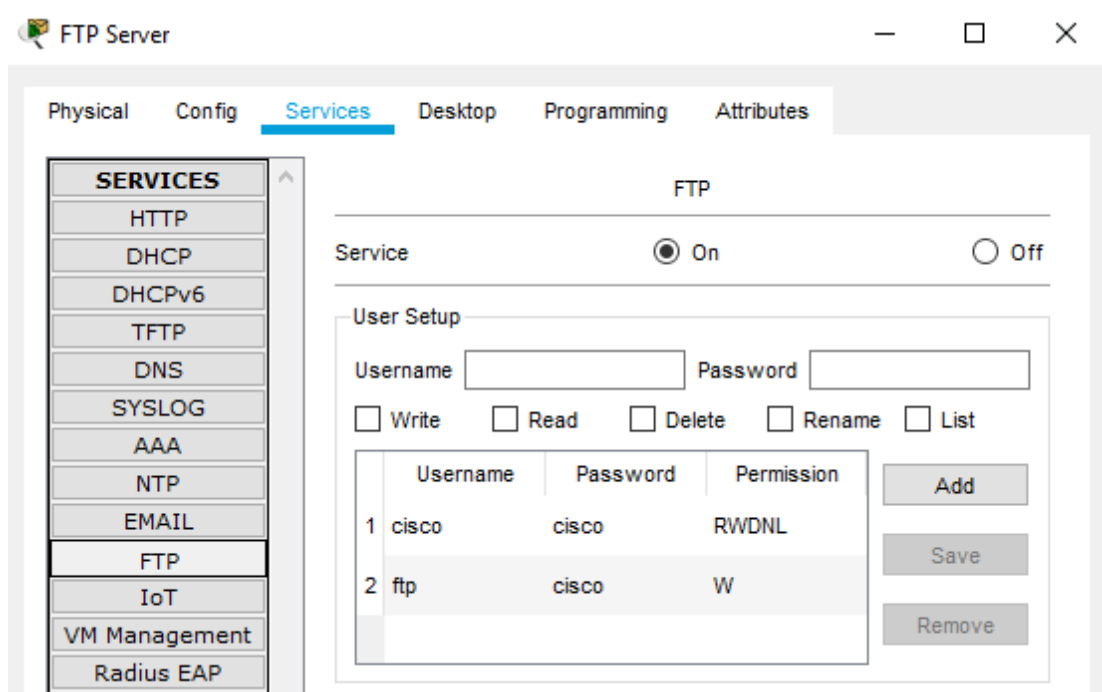
To understand the different cabling types and different network topologies.

### CLASS ASSIGNMENTS

Q1: Describe the configuration of the system in Cisco laboratory.

Assigning a unique IP address to each end device to form a network within the devices and deploying a set of rules (Protocols) is called configuring the System/Network. Following is the Example.





Successful Ping to FTP and Web Server

```
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

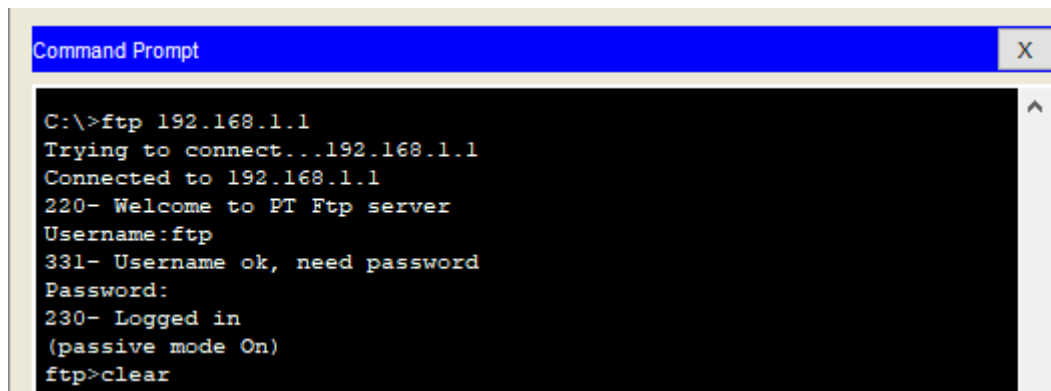
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

## Successful Login to FTP server



```
Command Prompt
C:\>ftp 192.168.1.1
Trying to connect...192.168.1.1
Connected to 192.168.1.1
220- Welcome to FT Ftp server
Username:ftp
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>clear
```

## HOME ASSIGNMENTS

Q2: Briefly describe any four (4) network types.

### 1. Personal Area Network (PAN)

The smallest and most basic type of network, a PAN is made up of a wireless modem, a computer or two, phones, printers, tablets, etc., and revolves around one person in one building. These types of networks are typically found in small offices or residences and are managed by one person or organization from a single device.

### 2. Local Area Network (LAN)

The most common and frequent, one of the most original and one of the simplest types of networks. LANs connect groups of computers and low-voltage devices across short distances (within a building or between a group of two or three buildings close to each other) to share information and resources. Enterprises typically manage and maintain LANs.

### 3. Metropolitan Area Network (MAN)

These types of networks are larger than LANs but smaller than WANs – and incorporate elements from both types of networks. MANs span an entire geographic area (typically a town or city, but sometimes a campus). Ownership and maintenance are handled by either a single person or company (a local council, a large company, etc.).

### 4. Wide Area Network (WAN)

Slightly more complex than a LAN, a WAN connects computers across longer physical distances. This allows computers and low-voltage devices to be remotely connected over one large network to communicate even when they're miles apart.

The Internet is the most basic example of a WAN, connecting all computers around the world. Because of a WAN's vast reach, it is typically owned and maintained by multiple administrators or the public.

A3: Briefly describe Topology and its types.

- **Network Topology**

Network topology refers to the physical or logical layout of a network. There are two types of network topologies: physical and logical.

The Physical topology emphasizes the physical layout of the connected devices and nodes, while the logical topology focuses on the pattern of data transfer between network nodes.

There are the following types of Network Topologies

- Mesh
- Star
- Ring
- Bus
- Hybrid

Q4: Write down the Difference between PAN and MAN

- **PAN**

It is capable of providing network connection.

- **MAN**

It covers an area larger than PAN

Q5: Write down the Difference between LAN and WAN

- **Local Area Network (LAN):**

LAN is a group of network devices which allow the communication between connected devices. The private owner has control over the local area network rather than the public. LAN

has a short propagation delay than MAN as well as WAN. It covers the smallest area such as College, School Hospital, etc.

- **Wide Area Network (WAN):**

WAN covers the large area than LAN as well as MAN such as Country/Continent etc. WAN is expensive and should or might not be owned by one organization. PSTN or Satellite medium is used for wide area network.

### **CONCLUSION:**

While configuring a network, Assigning a unique IP address to each end device to form a network within the devices and deploying a set of rules (Protocols) to exploit the system according to the requirements of the domain. There are a variety of protocols and applications CISCO offers to fulfil the requirements that meet the security.